

Memorandum

To: MPO Committees
From: Sandy Shackelford, Director of Planning and Transportation
Date: January 9, 2024
Reference: Fontaine Interchange Improvement – SMART SCALE Round 4

Purpose:

In Round 4 of SMART SCALE, the Charlottesville-Albemarle MPO submitted an application for a displaced left turn at Fontaine Avenue that was awarded for funding. The original concept for this interchange was a Diverging Diamond Interchange (DDI). However, the DDI had been submitted in previous rounds of SMART SCALE and had not scored well enough to be funded. Therefore, VDOT worked with consultants to develop the displaced left turn as a less expensive alternative in an effort to secure funding for the project. While the MPO Policy Board and Albemarle County Board of Supervisors agreed to move forward with the application, the City, the County, and the Policy Board had reservations in the design as evidenced by documented comments from the Policy Board of preferences for the DDI and concerns for the displaced left turn concept expressed by both the University of Virginia (UVA) and the City of Charlottesville.

In an effort to assess some of the concerns and prior to beginning construction on the project, VDOT worked with a consultant team to explore other options that could potentially be implemented within the award amount funded.

Discussion:

Background

The primary objective of the project as documented in MPO meeting minutes was to address the westbound turning movement from 29 North to I-64. The overall concept of the funded project was to close the left turn movement from 29 North to I-64 westbound and redirect the traffic making that movement through the Fontaine Interchange. Vehicles wishing to access I-64 west bound from 29 North would take the Fontaine exit and have a protected left-turn movement to make a U-turn back onto 29 South in order to access I-64 west (see Figure 1).

All other vehicles would turn right onto Fontaine Avenue. For those vehicles wishing to travel west onto Fontaine Avenue or stay straight to get back onto 29 North, they would turn right off of the exit and make a U-turn at Ray C. Hunt Drive (see Figure 2). Any vehicle traveling along Fontaine Avenue from the west of the interchange wishing to access 29 northbound would also need to go through the interchange to make the U-turn at Ray C. Hunt Drive. To accommodate commercial vehicles, a bulb out was planned to ensure that large vehicles could facilitate that turn.

The proposed project included a shared use path to facilitate bicycle and pedestrian access across the interchange.

Both the City of Charlottesville and UVA expressed concerns related to this alternative design when it was proposed.

Primary concerns included:

- The City of Charlottesville was working to make Fontaine Avenue more pedestrian-friendly. The proposed changes would direct interstate traffic onto a local road, including high volumes of truck traffic.
- The Rivanna Trail has connections on both sides of Fontaine Avenue. Additional interstate traffic will make it less safe for trail users to cross Fontaine. Additional pedestrian accommodations such as pedestrian lighting, curb extensions/pedestrian refuges, green space/landscaping/buffering were requested to provide a more cohesive connection to the Fontaine Streetscape project that was initiated by the City.
- The growth scenarios used to evaluate the alternatives were not reflective of planned development by the University, and the proposed project therefore may not provide the benefits that were estimated during the alternatives analysis.

- Local traffic along Fontaine Avenue is expected to increase along with planned development and additional growth at the Fontaine Research Park, which would enter the research park at the Ray C. Hunt intersection leading to additional concerns with the additional traffic navigating through the Ray C. Hunt intersection.

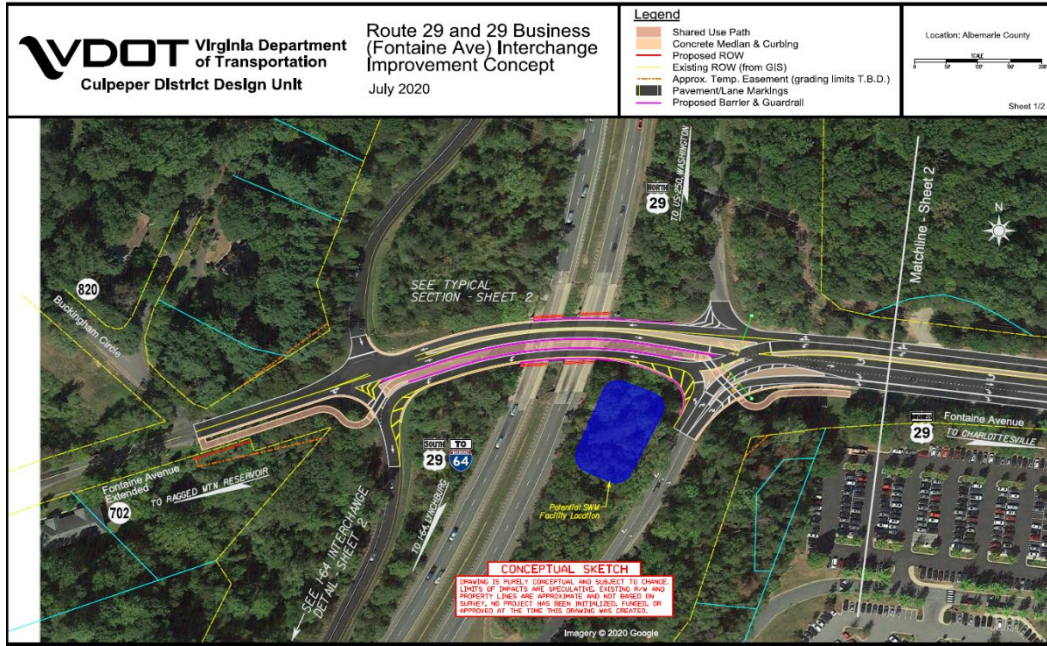


Figure 1

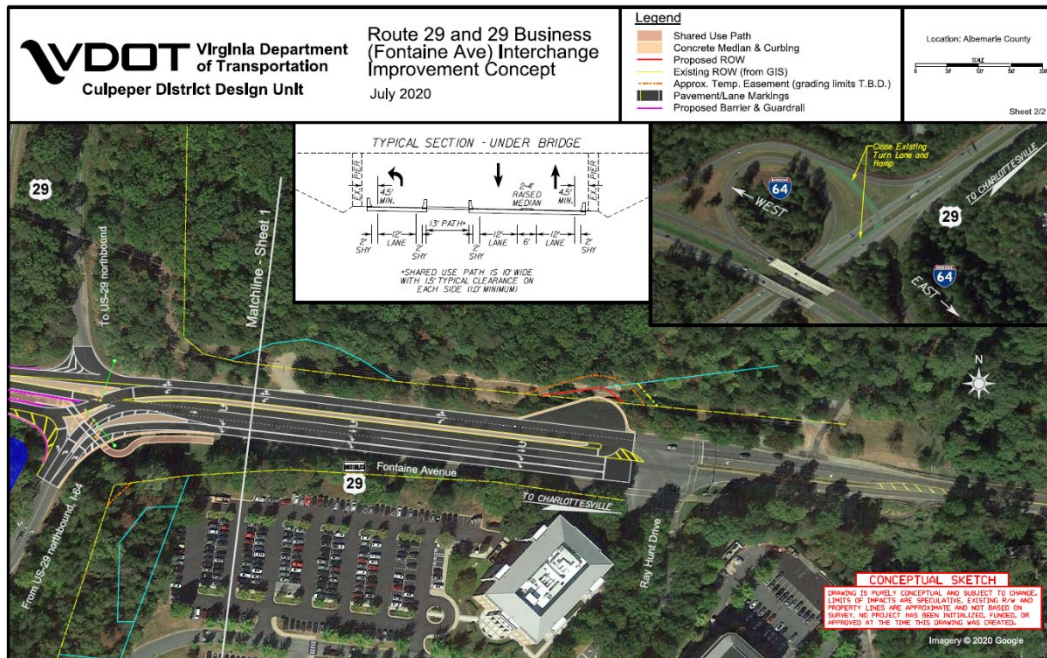


Figure 2

Prior to moving forward with the project as scoped, VDOT worked with a consultant team to evaluate some additional alternatives based on the following factors:

- The cost of any of the alternatives was to remain within the funding amount awarded through SMART SCALE Round 4.
- If the scope of a project awarded through SMART SCALE changes, the project must be re-scored based on the criteria it was originally scored with to ensure that it meets the benefit requirements to receive funding through its awarded round. The Fontaine Avenue project received most of its score from the land use benefits which is primarily due to the inclusion of the shared use path component. As long as the shared use path is included, the benefit score of the rescoped project would be high enough for scope adjustments to be made.

Round 4 SMART SCALE Score:

	Congestion Mitigation	Safety	Accessibility	Economic Development	Environment	Land Use
Factor Value	5.6	5.9	0.1	1.1	0	86.1
Weighted Factor Value	0.9	1.2	0.0	0.2	0.0	8.6
Project Benefit	10.9					
SMART SCALE COST	\$12,374,620					
SMART SCALE Score	8.8					

Alternatives

The following alternatives to the displaced left turn were reviewed, but ultimately ruled out from further consideration:

- Roundabouts – cost and operations
- Diverging Diamond Interchange – cost
- Continuous Green-T Intersection – cost and operations

The remaining alternatives for the interchange include:

- Displaced Left Turn (existing concept)
- Conventional Intersections

There are three conventional intersection designs that are currently under consideration by VDOT. Each of those include signaling the ramps between 29 and Fontaine Avenue with some additional lane reconfigurations. Those concepts are included as Attachment A and will be reviewed in more detail during the meetings. The primary benefits of these alternatives is to improve traffic operations along Fontaine Avenue itself. However, it is important to note that none of the new alternatives address the left turn movement from 29 northbound to I-64 westbound, which was a stated primary objective for pursuing this project.

Options

Several options remain for how to move the project forward, to include:

1. Move forward with the existing project as scoped.
2. Pull the project (and therefore decline awarded funding) and reapply for the full diverging diamond interchange improvement or another preferred alternative for the project.
3. Pursue one of the conventional intersection configurations proposed by VDOT and their consultant team (therefore, not addressing the left-turn movement at Route 29).

Factors for consideration

- There is no alternative to address the left turn movement from 29 northbound to I-64 westbound currently developed. It is possible that this could be identified in a future study, but any information regarding potential designs or costs are unknown at this time.
- It is difficult to assess whether any solutions to address the left turn movement by itself would be competitive for funding through SMART SCALE. Based on the existing information available, it would not appear to garnish sufficient SMART SCALE benefit points.
- The primary SMART SCALE benefit for the project came from the land use scoring factor, which resulted from the shared use path along Fontaine Avenue. The Commonwealth Transportation Board's decision to eliminate the land use scoring factor from the SMART SCALE scoring criteria could have significant impacts for the competitiveness of this project if submitted in future funding rounds. It is possible that recently adopted changes to the Economic Development measurements could provide some additional project benefits through SMART SCALE, but it is difficult to assess whether this is likely until there is data on this scoring process through the first round using the new methodology. Pulling the project and reapplying runs the risk that the project will not receive any funding in future rounds.

Actions: Staff is sharing this information for review and discussion purposes. Action on the desired direction will be requested at the MPO Policy Board meeting in February.

Attachment A

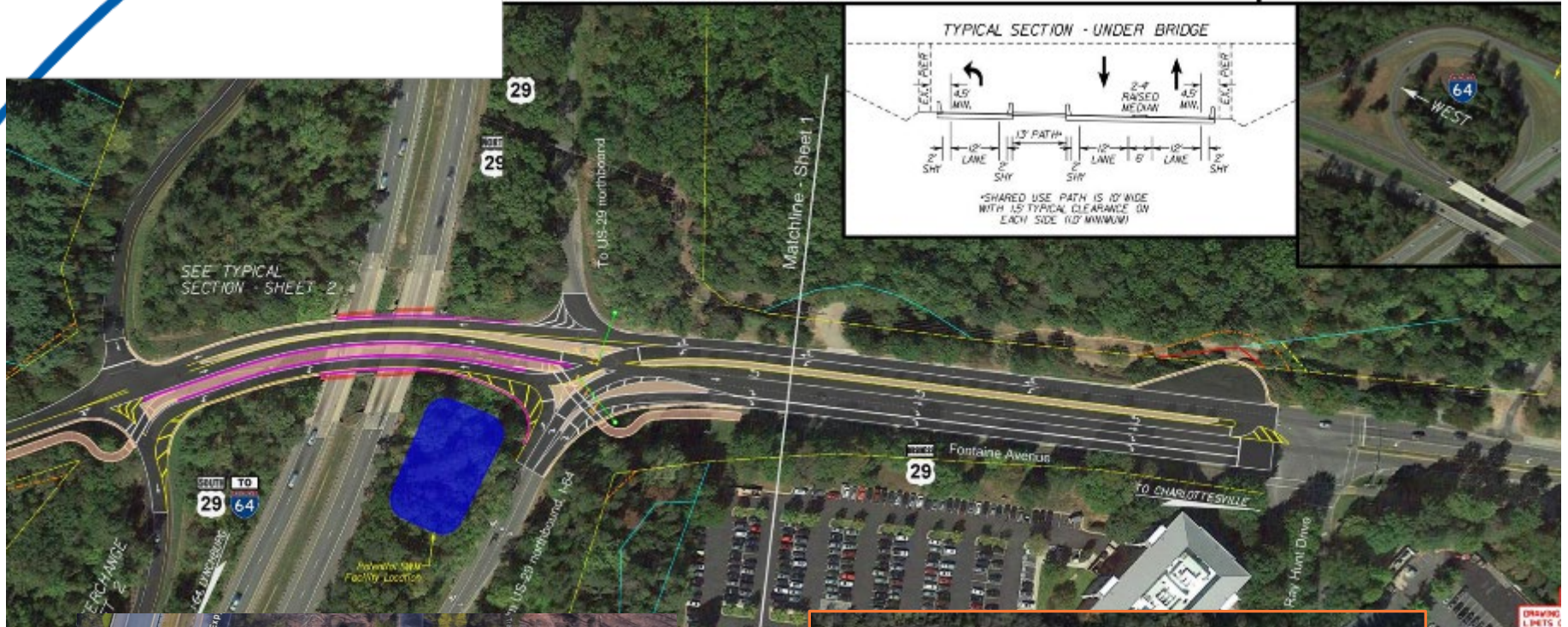


ATCS

Michael Baker
INTERNATIONAL

Fontaine Ave & US 29 Interchange

Current Design

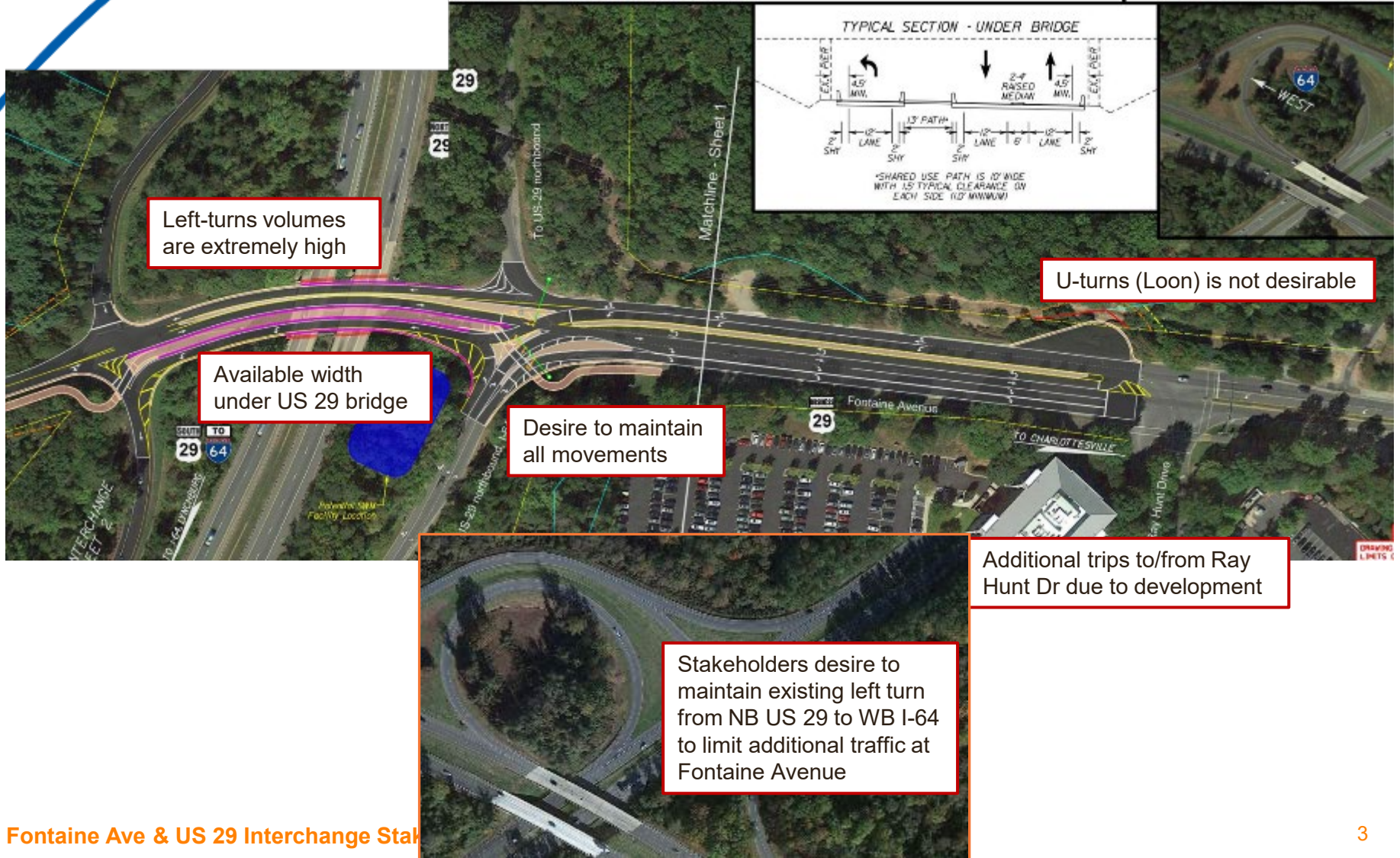


Existing intersection



Removal of left turns from NB US 29 to WB I-64 - trips would be routed through Fontaine Interchange to SB US 29 to WB I-64

Issues/Challenges with current Design



Alternatives Development

Interchange

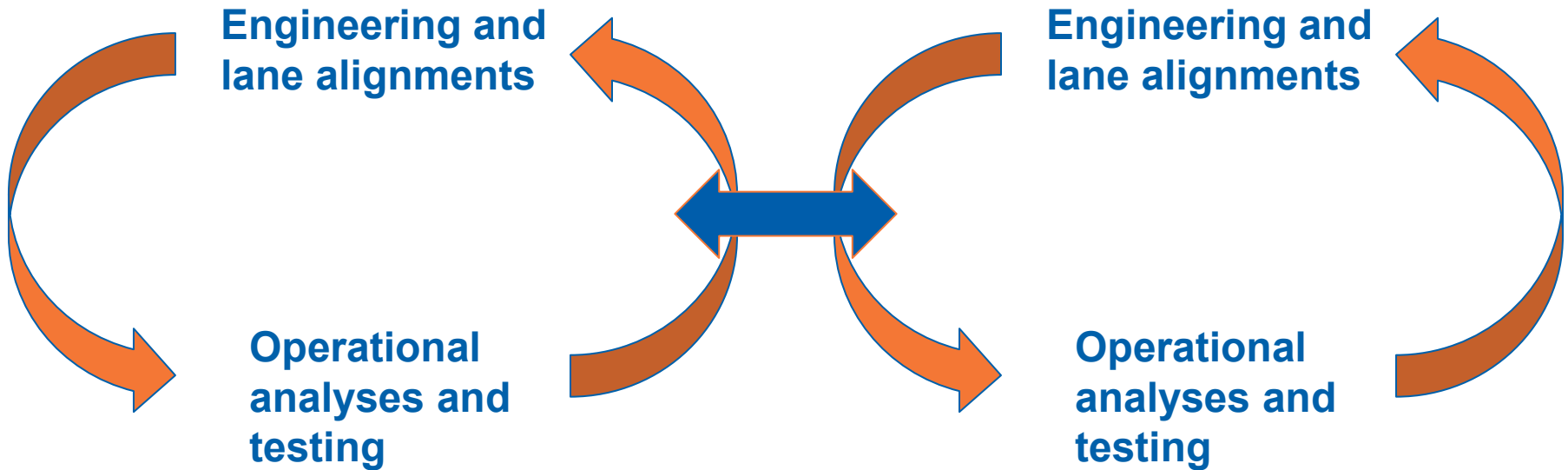
Engineering and
lane alignments

Operational
analyses and
testing

Ray Hunt Dr

Engineering and
lane alignments

Operational
analyses and
testing



***Maintain similar cost of Smart Scale Project and keep shared use path**

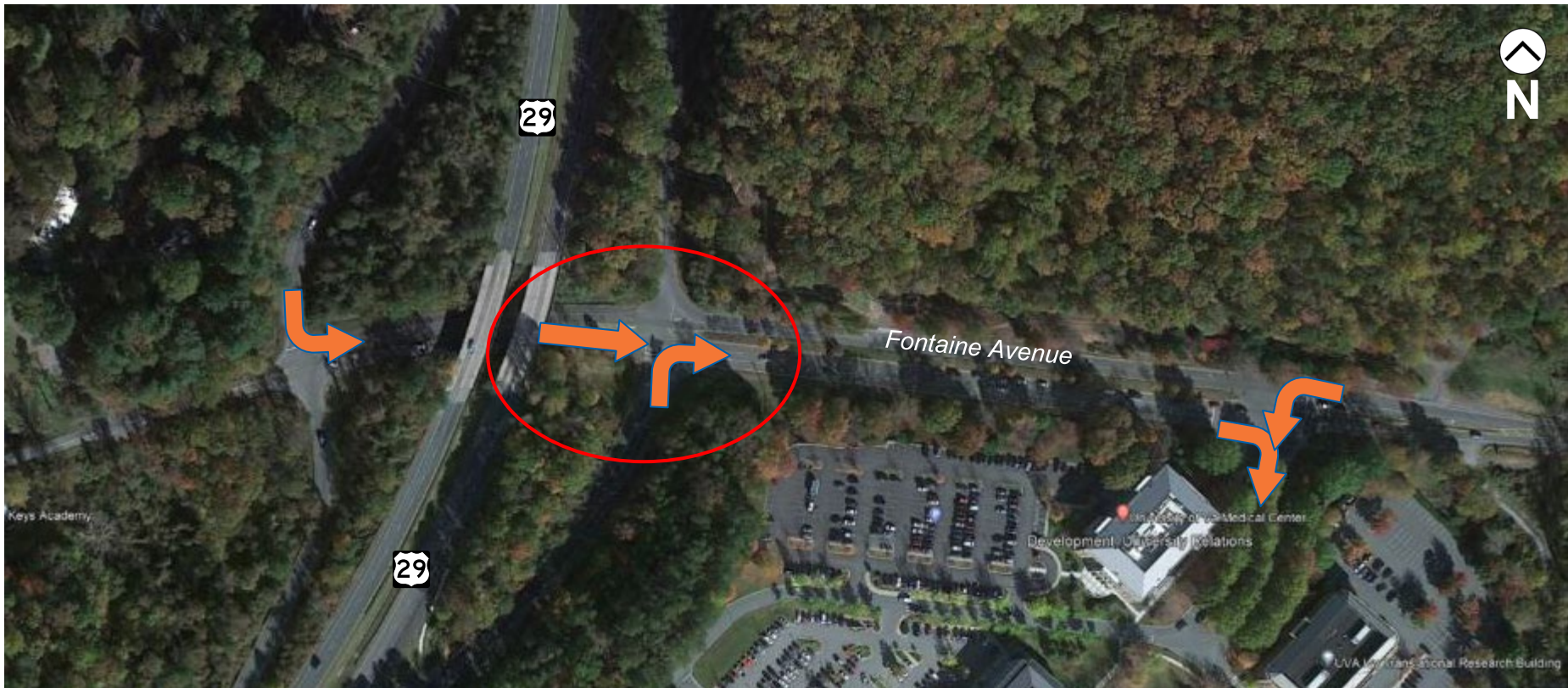
Alternatives Development

Considered Alternatives

- **Roundabouts** **Cost, Operations**
- **Diverging Diamond Interchange (DDI)** **Cost**
- **Displaced Left Turn (DLT)** **Currently under consideration**
- **Continuous Green-T (CGT)** **Cost, Operations**
- **Conventional Intersections** **Currently under consideration**

*The list above includes previously considered alternatives

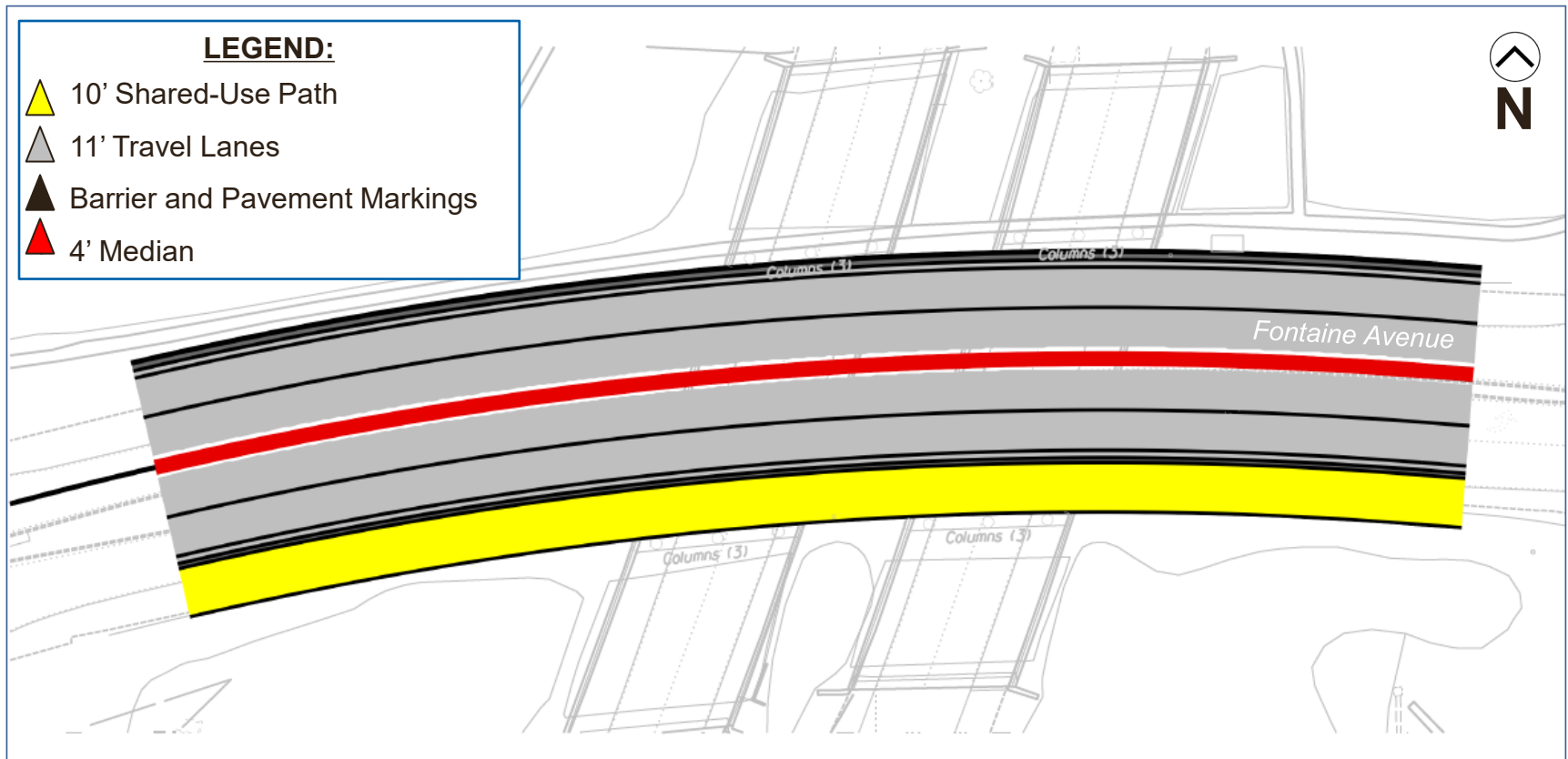
Alternatives Development AM Critical Movements



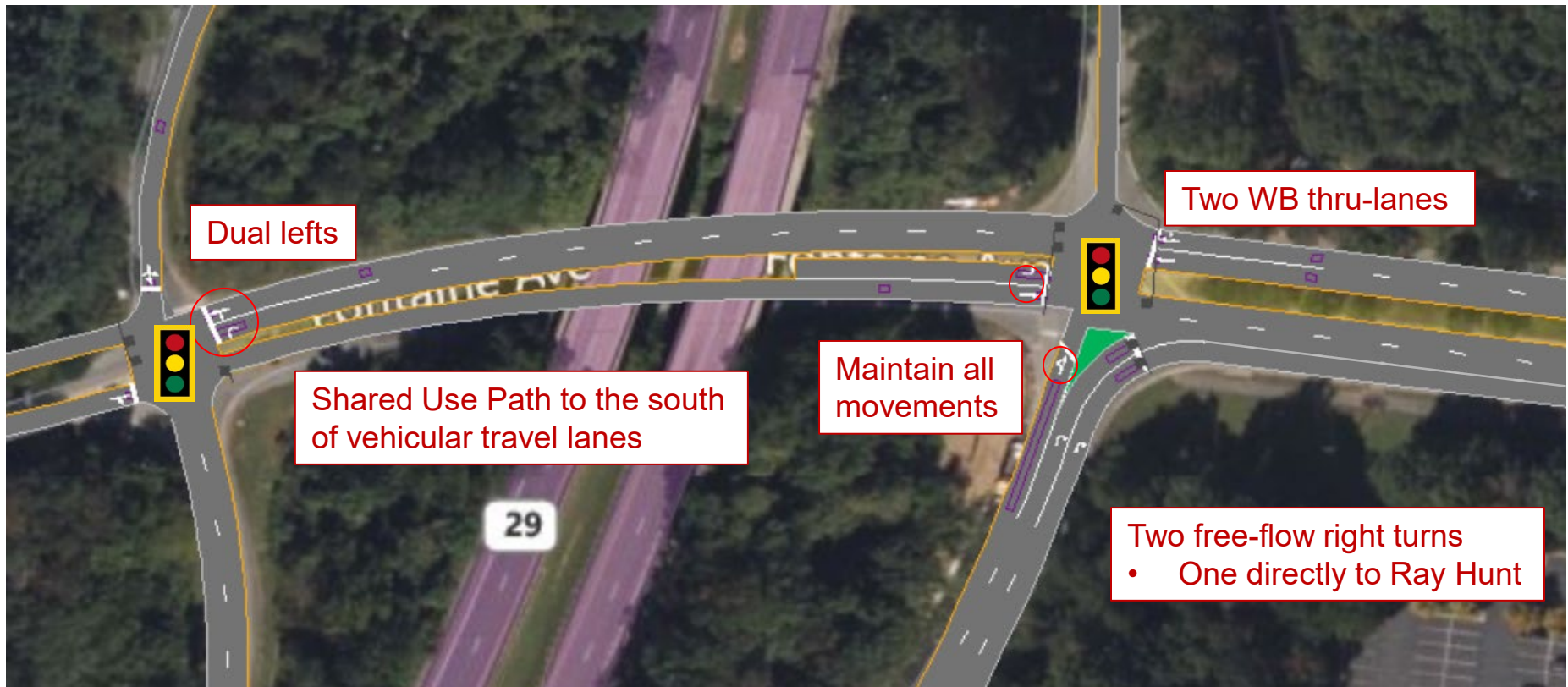
Alternatives Development PM Critical Movements



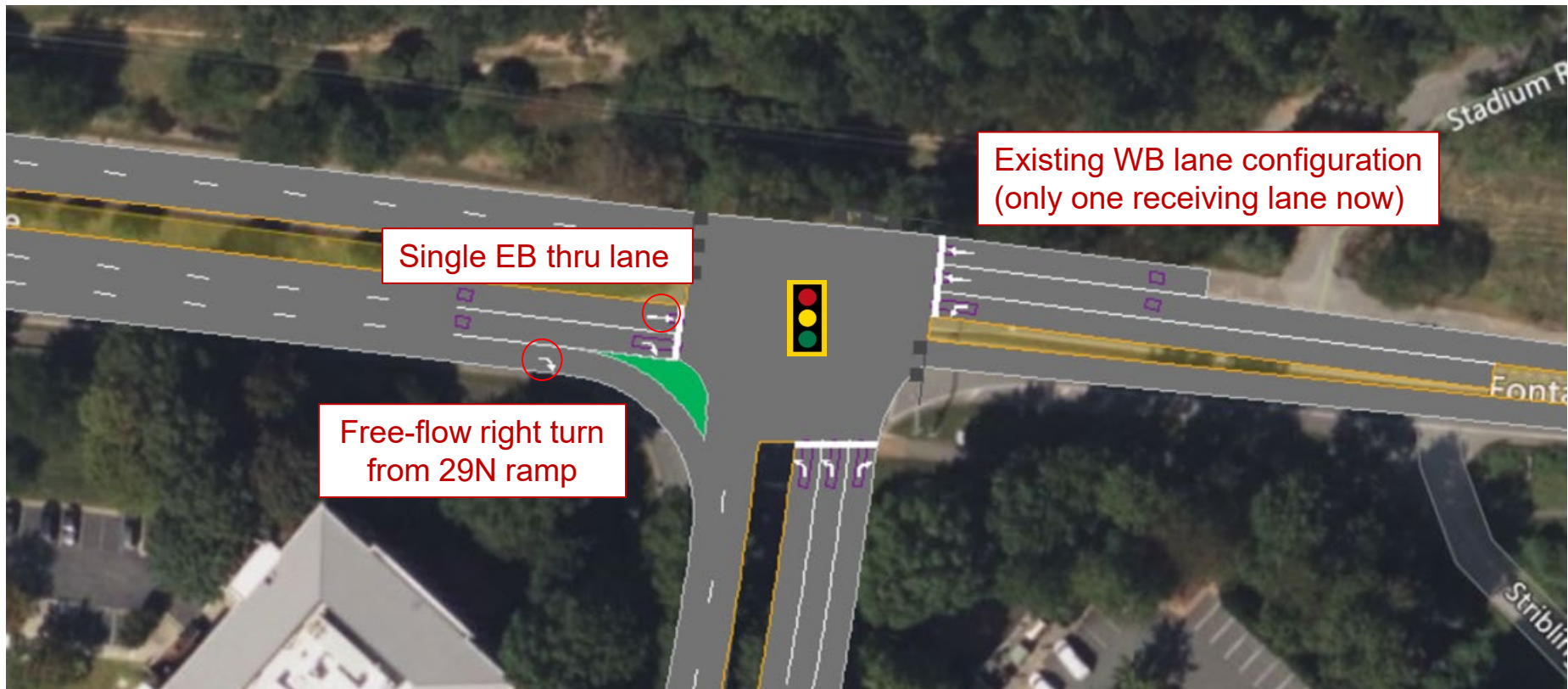
Alternatives Development Under Bridge



Alternatives Development Base Concept



Alternatives Development Base Concept



Alternatives Development

Base Concept – 2045 Prelim AM Queues

(SimTraffic max queue) of (Available storage)



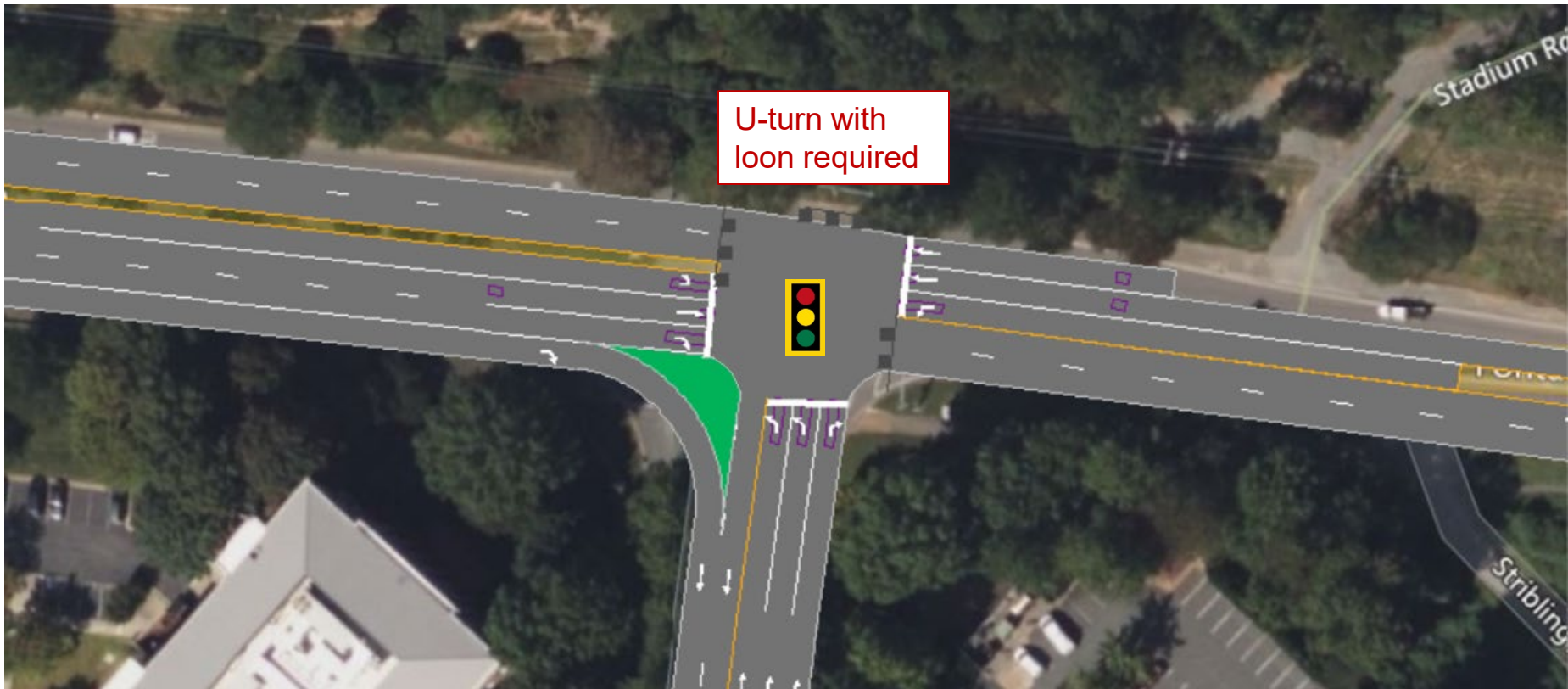
Alternatives Development

Base Concept – 2045 Prelim PM Queues

(SimTraffic max queue) of (Available storage)



Alternatives Development Upgrades to Base Concept



Alternatives Development Upgraded Concept – 2045 AM Queues

(SimTraffic max queue) of (Available storage)

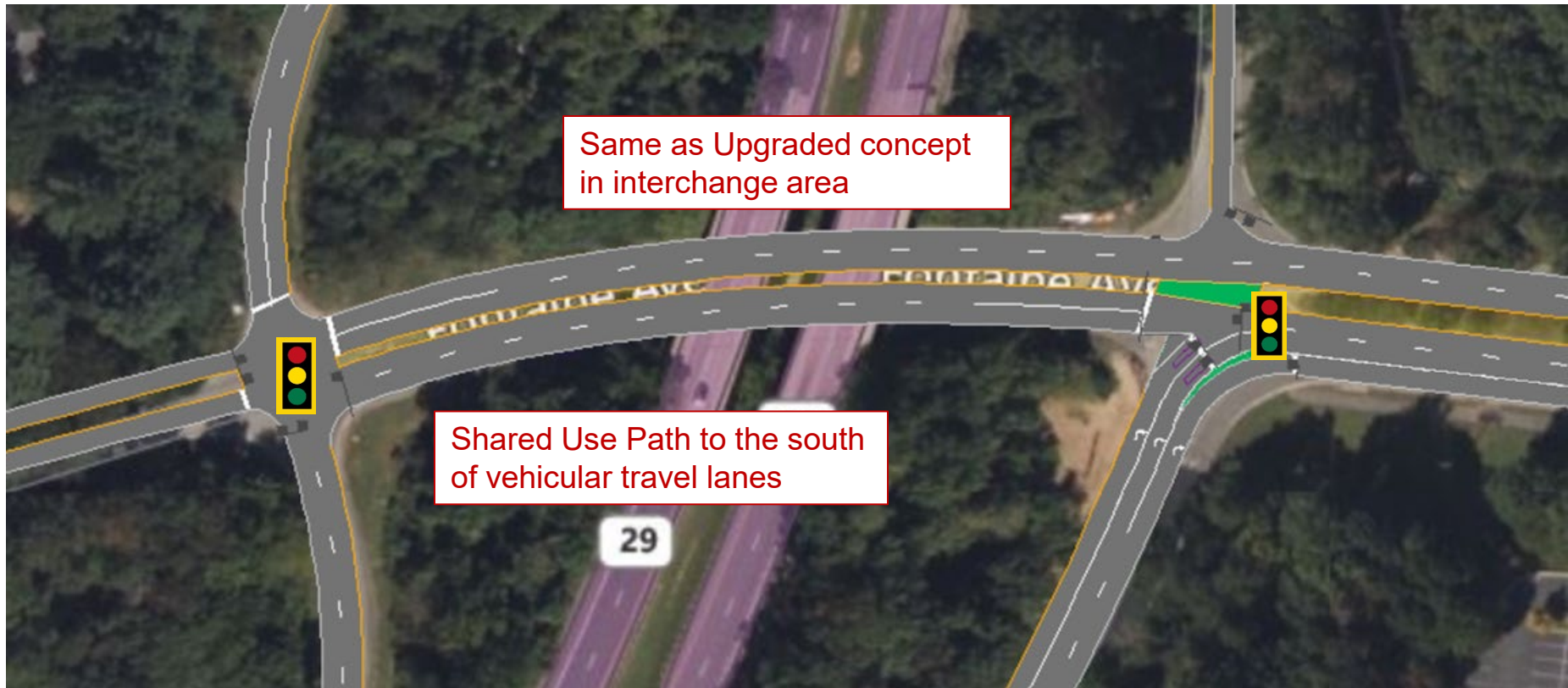


Alternatives Development Upgraded Concept – 2045 PM Queues

(SimTraffic max queue) of (Available storage)



Alternatives Development Ultimate Concept



Alternatives Development Ultimate Concept



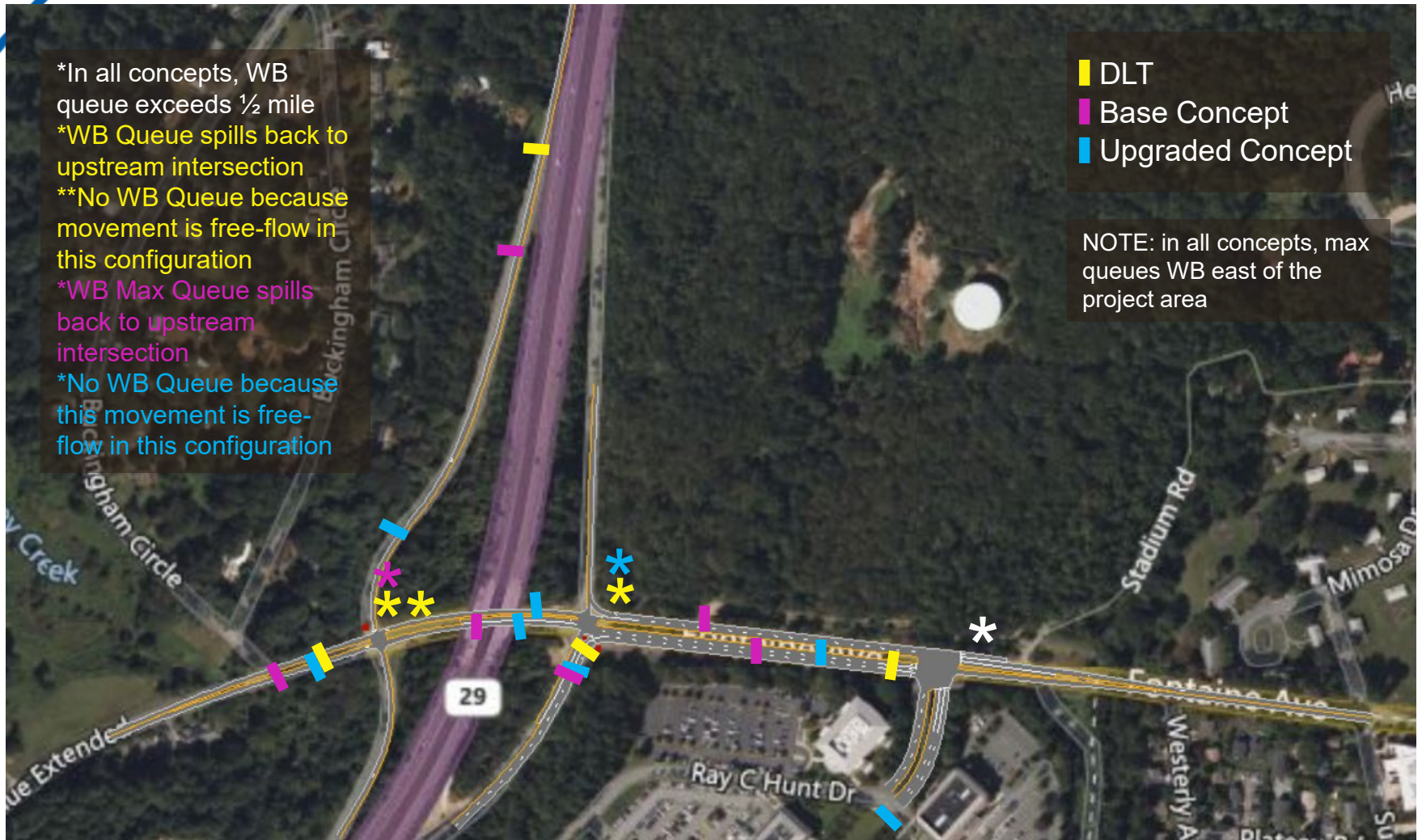
Alternatives Development

Max Queue Comparison – 2045 AM



Alternatives Development

Max Queue Comparison – 2045 PM



Alternatives Development

Other Considerations

UVA development Build-out year and Project Phasing

**Smart Scale Fontaine Avenue Streetscape improvements
(within City)**

Potential Fontaine Widening west of City

Attachment B

Fontaine Interchange Improvement SMART SCALE Application Timeline

7/1/2020

At this time, the standing concept was still the DDI. See email from CAMPO to Albemarle County staff with application information or their review.

7/13/2020

CAMPO staff was forwarded the concept sketch for the displaced left turn.

7/20/2020

CAMPO and Albemarle County staff met with VDOT to discuss the DLT concept.

7/22/2020

DLT concept was reviewed at the CAMPO Policy Board Meeting.

From the meeting minutes:

Mr. Boyles said the changes were made up to just a few hours prior to this meeting. He said he would like to have community engagement, perhaps virtually, sometime in August and then come back to the Board for a final resolution for that one project.

Ms. Mallek asked why there were changes to the project.

Mr. Lynch explained there was an effort to reduce the cost while salvaging the benefits of the project to give it more of a chance for funding. The movements through the intersection will be different. He noted that it would be worth waiting to see if it is feasible with the public's input and support.

7/27/2020

Email sent from CAMPO to the Policy Board letting them know that we scheduled a webinar to review the proposed changes to the DDI concept. The webinar was scheduled for August 3, 2020.

7/31/2020

Email sent showing difference in costs between the DDI concept and the Displaced Left Turn concept.

8/3/2020

Email from the City to Albemarle, CAMPO, and VDOT staff sent expressing concerns.

The City wishes to highlight its concern about the mix and volume of users being expected to use this unique, innovative concept.

This intersection serves local vehicle traffic that will become used to the design as well as occasional visitors who will probably not become accustomed to anticipating the correct lane/required movement - to the hospital/outpatient services/football games/the University/etc.

Pedestrians use the RTF trailhead directly off Fontaine as well commute along the roadway or take neighborhood walks – something rarely encountered soon after leaving the Interstate/Bypass/Limited Access facilities. The City is also making Fontaine more walkable and multimodal in its section through a current Streetscape project.

Now, with this design, we are anticipating adding Interstate movements to the existing ramps to eliminate safety concerns on 64 – which include a high volume of truck traffic.

Both the County and the University are also proposing additional developments within the area which will also increase the volume – so an improvement to these intersections are needed.

We note that a shared use path, concrete barriers, signals and signage are proposed to aid in separating movements/modes and communicating movements.

We would propose enhanced pedestrian lighting, curb extensions/pedestrian refuges to aid in crossings, consideration of bicyclists and landscaping/green space/buffers be included when identifying the project limits – all elements used in the Fontaine Streetscape. Extending this project’s limits slightly to the City/County line would create a connection to the streetscape project, eliminating a “gap” between the 2 projects, while providing benefits both to the community and enhancing the application’s score within SmartScale with low cost implications. 60% design plans for the Streetscape project can be found here:

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Softer details designed at a human scale will help promote safer multimodal movements while giving cues to the motorists that they have left the interstate and to slow down as they are entering a City and neighborhood.

8/19/2020

Albemarle discussed the alternative concept at their Board meeting (after submission deadline)

9/23/2020

CAMPO Policy Board approved the resolution of support for the Fontaine Displace Left Turn

From the meeting minutes:

Mr. Proctor explained the updated concept sketch and changes to the County's Fontaine Avenue's Smart Scale application to the Policy Board and meeting participants.

Mr. Boyles said there was a question that came up at the CTB meeting last week. He said it is important to be clear in identifying the objective with a project like this. This one addresses congestion, safety, and west-bound turn movement onto I-64. He asked what the one overall benefit of the project was.

Mr. Proctor said the safety aspect is highest benefit.

Ms. Monteith said UVA had a team of people who took a look at the project approximately a month and a half ago and then gave it to the public for their comments. She read the comments from the public. She finished the comments by saying that the group felt the project needed a lot more scrutiny before moving forward.

Mr. Gallaway moved for the approval of the Smart Scale application for the Fontaine Avenue project as presented. Mr. Payne seconded the motion. The motion passed unanimously.

Mr. Gallaway noted that the Albemarle County Board of Supervisors preferred the previous design.